

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

REPORT OF EXAMINATION

TO APPROPRIATE PUBLIC WATERS OF THE STATE OF WASHINGTON

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Surface Water

(Issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)

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Ground Water

(Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

PRIORITY DATE	APPLICATION NUMBER	PERMIT NUMBER	CERTIFICATE NUMBER
March 29, 1991	G2-28195		

NAME
City of Tumwater

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
555 Israel Road S.W.	Tumwater	Washington	98501-6515

PUBLIC WATERS TO BE APPROPRIATED

SOURCE
Well No. 12-94 at Bush Middle School (ID No. ABF588)

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE-FEET PER YEAR
	910 (supplemental)	1465 (supplemental)

QUANTITY, TYPE OF USE, PERIOD OF USE		
1465 acre-feet per year	Municipal supply	Year-round, as needed

(supplemental to existing rights at Palermo Wellfield, G2-26816P)

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION--WITHDRAWAL
746 feet north and 603 feet east of the southwest corner of Section 10.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE, (E. OR W.) W.M.	W.R.I.A.	COUNTY
SW $\frac{1}{4}$ SW $\frac{1}{4}$	10	17N	2W	13	Thurston

RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

Area served by the City of Tumwater Utility.

DESCRIPTION OF PROPOSED WORKS

Well (ID No. ABF-588) - 16" x 121'

DEVELOPMENT SCHEDULE

BEGIN PROJECT BY THIS DATE:

Started

COMPLETE PROJECT BY THIS DATE:

July 1, 1995

WATER PUT TO FULL USE BY THIS DATE:

July 1, 1996

REPORT

BACKGROUND:

The priority date of this application is March 29, 1991. On that date, the City of Tumwater applied to the Department of Ecology for a permit under the provisions of Chapters 90.03 and 90.44 Revised Code of Washington (RCW), to appropriate public ground water from a well at a rate of 1,000 gallons per minute for municipal supply. The application number is G2-28195.

The City subsequently amended this application to reflect a point of withdrawal at a new location, the Bush Middle School. The new well is needed as an alternative source of water because volatile organic contamination has been detected in Tumwater's Palermo Wellfield.

Legal notice of the proposed appropriation was duly published. No protests were received by this office.

A preliminary permit authorizing the drilling and testing of this well was issued by Ecology on January 5, 1994. Under 90.03.250 and 90.44.020 RCW, the Department of Ecology may issue a preliminary permit to enable an applicant to gather the information needed to assess the potential impacts of a proposed project.

A temporary permit authorizing the use of the production well was issued on June 7, 1994. The temporary permit allows the City of Tumwater to utilize the well during the pendency of the water right permit.

Based on the report below, I recommend issuance of a permit.

INVESTIGATIONS:

In consideration of this application, I visited the project site on June 9, 1994. I researched pertinent State records such as well drilling reports, recorded water rights, and flow regulations for the Deschutes River Basin (Chapter 173-513 Washington Administrative Code). Additional information was obtained from a review of the Well Completion Report Well No 12-94, City of Tumwater, Washington, Pacific Groundwater Group, May 1994.

The subject well, referred to as Well No. 12-94, is located immediately north of the George Bush Middle School in the southwestern corner of the City of Tumwater. The well is situated adjacent to a second well constructed at the site under the authority of existing water right permit No. 7278.

The intent of this application is to secure rights for the use of the subject well. The well is a replacement production source for a portion of that capacity lost to contamination at the Palermo Wellfield in August 1993.

Existing rights issued to the City of Tumwater at the Palermo Wellfield amount to 3,050 gpm, and 1,465 acre-feet per year, 2,174 acre-feet supplemental to existing rights. Water rights allocated under this filing will be considered as supplemental to existing rights held by the City of Tumwater at the Palermo Wellfield.

Description of Well and Hydrogeology.

The Pacific Groundwater Group's well completion report for the subject well, prepared for the City of Tumwater, May 1994, is on file with the Department of Ecology. From that report the following is summarized:

- The subject well was completed in 1994 with 16-inch casing to a depth of 121 feet, with a slotted well screen assembly set from 70 feet to 101 feet below ground surface. The well is completed in a layer of sand and well-rounded gravel with some brown silt that is interpreted to be Vashon-aged Advance Outwash deposits.

- The well was constructed by Hokkaido Drilling, and is tagged with Unique Well ID ABF-588.
- From their analysis of the aquifer test data the consultants have indicated that no adverse impact on pre-existing water rights holders is anticipated from the pumping of the subject well. The distance-drawdown data of the 24-hour pumping test were used to calculate potential interference drawdown in nearby wells. Additionally, neighboring wells, including that well owned by Claude May, were monitored during the testing process. The impact to neighboring wells is predicted to be less than the anticipated seasonal variation which has been measured in the City's production wells.
- Pacific Groundwater Group reports that the City's wells are located approximately 3,350 feet east of Mr. May's irrigation well. Water levels appeared to decline by about 0.05 feet (about one-half inch) more during the testing period than is attributable to the preceding regional decline. The water level rose slightly after the pump was turned off. The data indicated that water level changes may be measurable at Mr. May's well during pumping of the Bush Middle School wells, but that the magnitude of the changes are very small (on the order of inches). To place this potential water level change into perspective, water levels typically change by 8 feet or so over the year due to seasonal precipitation patterns.
- Aquifer testing indicates that nearly steady-state conditions were approached after 30 minutes of pumping. The aquifer transmissivity at the site is approximately 275,000 gallons per day per foot. The storage coefficient was calculated to be approximately 0.0006. The predicted long-term sustainable yield is approximately 675 gallons per minute. However, the City intends to redevelop the well, and may eventually equip it to produce as much as 910 gpm.

Effects on existing ground water rights.

A survey of existing wells within a quarter mile of the site was conducted by the Pacific Groundwater Group in February 1994, and verified with Department of Ecology records. Over 20 wells were located in the vicinity; two irrigation wells, two industrial well, four small community water system wells, four municipal production wells, and 13 domestic wells supplying single private homes.

The Pacific Groundwater Group evaluated the potential impact on these neighboring wells in the aquifer test completion report. The distance-drawdown of the 24-hour pumping test was used to calculate potential interference drawdown in nearby wells. The analysis indicates that other than City of Tumwater wells, most neighboring wells are predicted to be subjected to less than 6 inches of drawdown, and most to less than three inches of drawdown. Based on this assessment, the pumping of Well No. 12-94 will have no measurable impact on the continued operation of wells in the area.

Four recorded ground water rights have been issued within a half mile radius of the subject well. These rights amount to 455 gallons per minute, 74.5 acre-feet per year for domestic supply, irrigation and fish propagation. Based on the analysis of the aquifer test conducted on the subject well, I do not anticipate any detrimental impact to existing ground water users, as a result of authorizing water withdrawals from this well.

Protection of Deschutes River flows and other surface water rights. Under *Chapter 173-523 WAC, Water Resources Program in the Deschutes River Basin, WRIA 13*, base flows have been established for the Deschutes River, for "preservation of wildlife, fish, scenic, aesthetic, and other environmental values" (WAC 173-500-020).

The Pacific Groundwater Group report indicates that there are no surface waters located within the calculated radius of influence created by the pumping of the subject production well. The nearest surface water within WRIA 13 is the Deschutes River itself, located approximately 2.5 miles to the east.

While it is unlikely that the use of this well will have a direct impact on surface water flows, it is possible that some degree of hydraulic continuity exists between the ground and surface systems within the river basin. However, because this well is proposed as an alternate source to wells that are covered by existing rights, this supplemental appropriation should have no additional effect on Deschutes River flows.

The applicant is advised that the final withdrawal rate may be reduced at certification to reflect system capacity.

CONCLUSIONS:

In accordance with Chapters 90.03 and 90.44 RCW, I find that water is available from the source in question, and that the appropriation, as recommended below, is for a beneficial use and should not impair rights or be detrimental to the public welfare.

RECOMMENDATIONS:

I recommend that this application be approved and a permit be issued to allow appropriation of 910 gpm from Well 12-94 for municipal supply. The quantity withdrawn shall not exceed 1,465 acre-feet per year, which is not detrimental to the City's existing recorded ground water rights at Palermo Wellfield.

The permit shall be subject to all applicable State laws and regulations, and shall carry the provisions shown on the attached sheet.

PROVISIONS:

Under this authorization and Ground Water Right G2-26816 combined, the total pumping rate from the subject wells shall not exceed 3,050 gpm; total withdrawals shall not exceed 1,465 acre-feet per year. Compliance may be accomplished by alternating use of the wells, and/or by modification of pumping equipment so that combined withdrawal rates will not exceed 3,050 gpm."

The final withdrawal rate authorized by this water right may be reduced at the time of certification to reflect system capacity."

The water appropriated under this application will be used for public water supply. The State Board of Health rules require public water supply owners to obtain written approval from the Office of Water Supply, Department of Health, Mail Stop 7822, Building 3, Olympia, Washington 98504-7822, prior to any new construction or alterations of a public water supply system.

This permit is subject to the implementation of the minimum requirements established in the Conservation Planning Requirements, Guideline and Requirements for Public Water Systems Regarding Water Use Reporting, Demand Forecasting Methodology, and Conservation Programs, July 1994, and as revised.

Under RCW 90.03.005 and 90.54.020(6), conservation and improved water use efficiency must be emphasized in the management of the state's water resources, and must be considered as a potential new source of water. Accordingly, as part of the terms of this permit, the applicant shall prepare and implement a water conservation plan approved by the Department of Health. The standards for such a plan may be obtained from either the Department of Health or the Department of Ecology.

"An approved metering device shall be installed and maintained in accordance with RCW 90.03.360, WAC 508-64-020 through -040. Meter readings shall be recorded at least monthly."

"A summary of the previous year's water levels and production data for the above wells shall be submitted in tabular format to Ecology's Water Resources Program, Southwest Regional Office, annually during the month of February, or more frequently if requested by Ecology. The summary shall show monthly and annual totals of water withdrawn from the subject well."

REPORTED BY: J. Van Dulle Date: January 3, 1995

The statutory permit fee for this application is \$20.00.